



Product Data Sheet

Synthetic-LF Lead-Free No-Clean Solder Paste

Product Description

- Synthetic materials
- Long stencil life and wide process window
- Halogen/Halide Free
- Excellent wetting compatibility on most board finishes
- Low voiding
- Compatible with enclosed printing heads
- Clear residue

Alloys

Hirsch Metals manufactures a low-oxide, spherical and uniformly sized powder. SynTECH-LF is available in the following alloys: Sn96.5/Ag3.0/Cu.5, Sn96.5/Ag3.5, Sn99.3/Cu.7, Sn95/Sb5 and Sn95/Ag5 alloys.

Powder Distribution

| Micron Size | Type | Pitch Requirements |
|-------------|--------|--------------------|
| 75 - 45 | Type-2 | 24mil & above |
| 45 - 25 | Type-3 | 16mil to 24 mil |
| 38 - 20 | Type-4 | 12mil to 16mil |
| 25 - 15 | Type-5 | <12mil |
| 15 - 5 | Type-6 | <8mil |

Available Packaging

The following packaging options are available for stencil printing and dispensing applications: 250g and 500g jars; 250g and 700g cartridges; 750g ProFlow® cassettes; 35g and 100g syringes; 2,500g FreshMix® Kits.

Stencil Life

>10 hrs. @ 30–45% RH & 22–25°C
-6 hrs. @ 45–70% RH & 22–25°C

Viscosity

Printing applications: 700 to 1,000Kcps +/-10%
Dispensing applications: 450Kcps +/-10%
Tested according to IPC-TM-650

Tack Value

Typical tackiness: 40 - 60g force

Printing

The print definition of SynTECH-LF is ideal for fine pitch applications. The stencil life of this no-clean product virtually eliminates waste of solder paste. Consult the powder distribution chart to determine your mesh size requirements.

Printer Operation

The following are general guidelines for stencil printer optimization with Synthetic LF. Some adjustments may be necessary based on your process requirements.

Print Speed: 25–100mm/sec

Squeegee Pressure: 0.2–0.7kg/inch of blade

Under Stencil Wipe: Once every 10–25 prints or as necessary

Stencil Cleaning

Automated stencil cleaning systems for both stencil and misprinted boards. Manual cleaning using 99% isopropyl alcohol (IPA) works well.

Storage and Handling Procedures

Refrigerated storage at 42–47°F will prolong the solder paste shelf life to no less than 6 months. Syringes & cartridges should be stored vertically with the dispensing tip down. Solder paste should be allowed to reach ambient temperature naturally, prior to use (about 6-8 hours). NEVER FREEZE SOLDER PASTE.

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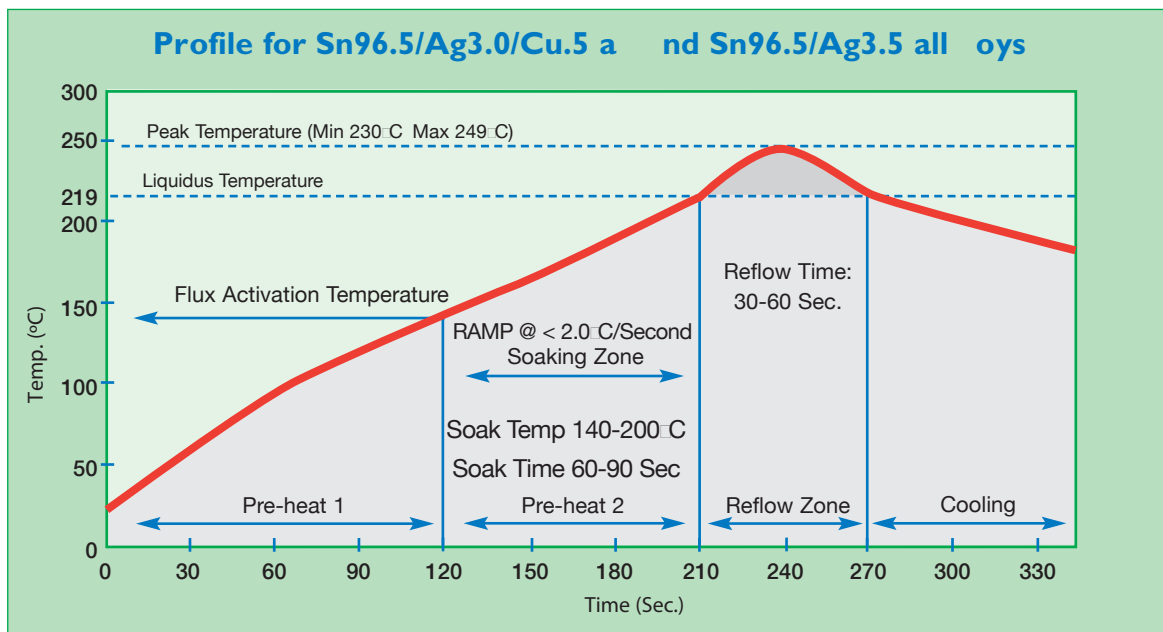
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J-STD-004 (IPC-TM-650) Test Results

| Test | Standard | Values | Results |
|------------------|--------------------|----------|---------|
| Flux Designator | IPC-TM-650 2.3.35 | NA | RELO |
| Copper Mirror | IPC-TM-650 2.3.32 | NA | PASS |
| Silver Chromate | IPC-TM-650 2.3.33 | NA | PASS |
| Bono Mirror Test | <10% | 1.56% | PASS |
| SIR Test | IPC-TM-650 2.6.3.3 | 4.93E+10 | PASS |

Recommended Profile:

This profile was designed to serve as a starting point for process optimization using Synthetic. A cool down rate of (-) 2–4°C/second is ideal for the formation of a fine grain structure without risking damage to thermally sensitive components.



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